

# CATS

CAPITOL AREA TIMEX/SINCLAIR  
USERS GROUP

# NEWSLETTER

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March 1986  
Vol. 3, No. 11

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**Meeting Date Change:** The next meeting of CATS will be held on Saturday, March 15. That's the third Saturday.

### From the Editor

Welcome to the CATS tax issue! I hope that you'll find some of the programs in this issue to be helpful. If you don't want to use the programs, perhaps you'll be able to adopt some of the techniques used into your own programs.

We need articles. There are more than thirty MODEMs in the club: surely some of you have discovered how to get the darn things working. Since I'm one of the thirty, you can download (upload?) your completed articles to me via MODEM. An article has been promised on driving an IBM 370 from a TS2068. Articles could cover local bulletin boards, real use of the FIDO net concept, current events on the big boards (Compuserve, etc.), patches to drive 80 column printers, how to transfer files between computers, etc..

For the rest of you: you're not going to let those telecommunicators take over, are you? We'll need more general programming articles for both the 1000 and the 2068. Especially reviews!

#### Bulletin Boards

Bulletin Boards, or BBS, are an inexpensive way to get involved in telecommunications. Ed Braun phoned over a selection of local numbers without comment. There's a story here! Let the rest of us know what you find as you explore. Columbia: 596-3569, Annandale: 560-0979, Gaithersburg: 428-7931, Great Falls: 759-5049, Rockville: 949-8848, Potomac: 424-5817, Arlington: 360-3393. Have fun!

#### Last Meeting

The hardware sessions are maturing: attendance is steady at around 20, but the scope of activity has broadened from the single project focus of the first meetings to a variety of jobs, large and small. Tom Bent is still in the thick of things, but other folks are taking responsibility for helping their neighbors, and the buzz of activity is hard to describe.

The "main" meeting was infected by the tail end of the hardware meeting. Folks had gotten so involved in their projects, they didn't bother moving in for the more formal part. It was disappointing for the formal presenters, but I think it says good things about the health of the club. We covered misc. questions in the first half, and a demo of machine to machine transfer of files via MODEM.

#### Next Meeting

There is a possibility that the principal force behind Zebra Systems may come down from New York. Zebra has brought us such things as the OS64 cartridge board, the \$24.95 version of MSCRIPT, and the 2068 version of the Koala Pad graphics tablet. It will be interesting to see where Zebra is going in the future.

As mentioned above, the next meeting will be held on the third Saturday of March, at the usual meeting place. This is not a permanent change - we'll be back to every second Saturday for the rest of the year.

## New Products, Etc.

We've recieved 2068 and QL catalogs from KNIGHTED COMPUTERS, 707 Highland St., Fulton NY 13069. Highlights include Omnicalc 2 for the 2068 @ \$19.50 and MSCRIPT 2 @ \$24.95. (+\$3.00 p&h)

BUDGET ROBOTICS & COMPUTING, PO Box 18616, Tucson AZ 85731 sends word of buffered expansion boards for ZX81 & 2068s, as well as a line of robot control boards.

ZEBRA SYSTEMS should be sending all you folks a copy of their catalog - a motion to supply our membership list to Zebra for that purpose passed by acclamation at the February meeting. Notable in their flyer is an offer for Timex books @ 3/\$12.00. Titles include Inside the TS2000, TS2068 Intermediate/Advanced Guide, & Master's Vu-Cal& Vu-File. (+\$3.00 p&h)

SUNSET ELECTRONICS, 2254 Taraval St., San Francisco CA 94116 is offering Westridge Modems, uncased, but with power supply, @ \$29.95. 415-665-8330.

If you're more adventureus, check with GLEN CLIFFORD or ED GREY. They're offering a "Hacker's Special." 4 modem boards, 2 untested, 2 known bad, with one set of cables and info on troubleshooting. \$10.00 to start, with price to rise as time goes on (???). Glen Clifford, 13910 Halldale Ave., Gardena CA 90249; (213) 516-6648.

Jules Gesang sends word that a sample database is available from GENIE: Dial (800) 638-8369; when you get through, type HHH (to set baud rate to 300); then VJM11999, GENIE. You get 15 minutes to explore what this database can offer.

GTE TELNET is offering an off-hours long distance service to major cities: \$25.00 flat rate for unlimited off-hours time. If you are getting into the bulletin board habit, this might keep your phone bill from looking like a ransom note. Phone PC Pursuit at 800 835-3001 or 703 689-2987 with your MODEM for a description of how it works. If you want to talk to a human, try 800 368-4215

If you are as confused as everyone else about how to use MTERM II, send \$8.00 to: BARRY CARTER, PO Box 614, Warren, MI 48090. In return, you'll get a copy of his booklet on using the advanced features of MTERM II.

John Burns, of the Atlanta TSUG, mentions a second enhancement for MTERM II: LOADER IV enhances MTERM, adding 20 extra auto-dial numbers, and allowing simple transmission of text files and machine code. Send \$7.95 to KURT CASBY, 25 Battle Creek Court, St. Paul, MN 55119.

AUTOMATED OFFICE PRODUCTS, (301) 927-9101 (Riverdale), sent us a flyer announcing a printer ribbon cartridge reloading service. I haven't checked their prices yet, but let me know if you'd be interested in doing a club ribbon collection.

### DEADLINE DATES

Meeting	Newsletter
	March 15
March 22	April 12
April 19	May 10
May 17	

## ERRATA

The circuit diagram of the TS 2068 (January CATS n/1) contains at least one error. Pin 8-4 on the external connector (non-component side) is not +15V DC. It is +5V DC. Thanks to March Renick.

We recieved a squawk from the Atlanta TSUG, correcting my attribution of the STAR TREK game to the LIST group. Apparently, an Atlanta TSUG member, Dr. Mahaffey translated it from the PDP-11 original, while their Editor, Bret Lanius, wrote the instructions. Well, thank you, Dr. Mahaffey, thank you, Bret; and thank you, LIST, for getting it on your library tape.

## SAVE THOSE RIBBON CARTRIDGES!

I mentioned Automated Office Products in my New Products Etc. column. I've just been talking with Greyson O'Kane, and found that they will refill your old cartridge, beating the best price I've heard of for new Prowriter cartridges. So - bring in your old cartridges to the March meeting, and save! They will do single cartridges, but they're giving us a price (\$2.50 each), and a block of cartridges would be less trouble for them. If you don't have a Prowriter, bring in your cartridges anyway; they'll refill any cartridge (prices may vary - he said the Prowriter cartridge was a piece of cake). Grayson may be at the March meeting.

## CONTRIBUTORS

Caroline & Murray Barasch  
Phil Doughty  
Mark Fisher  
Brian Little  
Dick Parker  
March Renick  
R.A. Schrack  
Sinc-Link  
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## OFFICIALDOM

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## COMPOUND INTEREST FOR 2K TS1000:

This handy 2K program for computing compound interest features an interesting screen display and the option of changing your input values to compare possible investment strategies. If you keep a 16K memory pack hooked up to your machine, begin by first lowering RAMTOP to 2K by direct command: POKE 16389,72. NEW. Now type in the program, and SAVE. Your tape may now be used on either an unexpanded 2K TS1000 or a large memory configuration.

**NOTE:** If INKEY\$ is any key other than (I),(P),or (T), the program retains the old values of these variables and returns the user to the menu. This arrangement eliminates a redundant error-catching routine.

**HINT:** When asked for "term in days", you may input an expression like "5\*365" saving a lot of figuring in your head.

Phil Doughty 55 Vassar Ave.  
Providence, RI 02906

TAPER

```

10 LET X$="COMPOUND I
N T E R E S T"
20 GOSUB 360
30 GOSUB 260
40 LET A=INT (100*P*(1+I/100)*
*(T/365))/100
50 CLS
60 GOSUB 360
70 PRINT "I/P/T", INVESTED AT
" I/P/T FOR"
80 PRINT T," DAYS, OR"
90 PRINT TAB 14;INT ((T/30.416
66)*100+.5)/100," MONTHS, OR"
100 PRINT TAB 14;INT ((T/365)+1
00+.5)/100," YEARS YIELDS:"
110 PRINT "A-P: INTEREST"
120 PRINT "FOR A TOTAL OF $";A
130 PRINT
140 PRINT "CHANGES? PRESS LETTE
R OF CHOICE."
150 PRINT
160 PRINT "(I)NTEREST RATE"
170 PRINT "(P)RINCIPAL"
180 PRINT "(T)ERM IN DAYS"
190 PRINT
200 IF INKEY$="" THEN GOTO 200
210 PRINT "ENTER (I)NKEY$;"
220 IF INKEY$="I" THEN INPUT I
230 IF INKEY$="P" THEN INPUT P
240 IF INKEY$="T" THEN INPUT T
250 GOTO 40
260 PRINT "INTEREST RATE: "
270 INPUT I
280 PRINT I," %"
290 PRINT "PRINCIPAL: "
300 INPUT P
310 PRINT P
320 PRINT "TERM IN DAYS: "
330 INPUT T
340 PRINT T
350 RETURN
360 PRINT
370 PRINT X$
380 FOR X=1 TO 6
390 PRINT "-----"
400 NEXT X
410 PRINT
420 RETURN

```

200  
210  
220  
230  
240  
250  
260  
270  
280  
290  
300  
310  
320  
330  
340  
350  
360  
370  
380  
390  
400  
410  
420

7th Year

## WASHINGTON/BALTIMORE AREA MICROCOMPUTER SHOW & SALE #3 and Computer Fleamarket

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**Saturday, March 15, 1986**  
10:00 AM TO 4:00 PM

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## Tax Code for 1985

Here is an update of the tax code. It is designed for those who use the 1040 and itemize deductions.

If you have the version of this code for 1984 then you need only change lines 9,38,40,42,50,100, 162,330, 480,550-570,684,850,and 900.

The program is menu driven and has the advantage that you may change any entry and recalculate the tax. Menu item 5 causes the input variable list to be printed out. This list is needed to make input changes. Results can be saved on tape for later revision.

R. A. Schrack

```

8 REM *****
9 REM      R.A. Schrack - 1985
10 REM    Tax Preparation code
11 REM *****
12 DIM M$(36,23)
14 DIM U(36)
16 DIM R(4)
18 DIM S(4)
20 LET R(1)=14
22 LET R(2)=14
24 LET R(3)=16
26 LET R(4)=17
30 LET S(1)=273
32 LET S(2)=273
34 LET S(3)=313
36 LET S(4)=341
37 GO TO 100
38 PRINT AT 11,0;"ENTER 3540 I
F MARRIED FILING JOINTLY OR QUAL
IFYING WIDOW."
39 PRINT
40 PRINT "ENTER 2390 IF SINGLE
OR HEAD OF HOUSEHOLD."
41 PRINT
42 PRINT "ENTER 1770 IF MARRIE
D FILING SEPARATE RETURN."
44 RETURN
50 CLS : PRINT AT 3,5;"Federal
Income Tax 1985"
52 PRINT
54 PRINT "Enter number of choi
ce from menu"
56 PRINT
58 PRINT "1. Fresh start"
60 PRINT "2. Correction run"
62 PRINT "3. Input data listin
g"
64 PRINT "4. Results listing"
66 PRINT "5. Input data index
listing"
68 PRINT "6. Save program on t
ape"
70 PRINT
72 PRINT "Do not use RUN to re
start the program- it will er
ase all your data! Use GO TO 50
instead."
74 PRINT "You will need the in
put data index listing before
you make a correction run."
76 INPUT Z
78 CLS
80 IF Z=1 THEN GO TO 12
82 IF Z=3 THEN GO TO 850
84 IF Z=4 THEN GO TO 680
86 IF Z=5 THEN GO TO 1000
88 IF Z=6 THEN GO TO 9000
90 PRINT AT 3,5;"Give index of
value to be changed."

```

```

92 INPUT K: IF K<=0 OR K>36 TH
EN GO TO 92
93 PRINT : PRINT "Give new val
ue of "M$(K);" = ";
94 INPUT V(K)
95 PRINT V(K)
96 PRINT : PRINT "give an R to
recalculate tax or ENTER for an
other correction."
97 PAUSE 0: CLS : IF INKEY#="R
" THEN GO TO 250
98 CLS : GO TO 90
100 LET M$(1)="6F NUMBER OF EXE
PTIONS"
102 LET M$(2)="7 SALARIES,WAGE
S,TIPS"
104 LET M$(3)="8 INTEREST INCO
ME"
106 LET M$(4)="9c ADJUSTED DIV
IDENDS"
108 LET M$(5)="10 REFUND STATE
INC.TAX"
110 LET M$(6)="12 BUSINESS INCO
ME (C)"
112 LET M$(7)="13 CAPITAL GAINS
(D)"
114 LET M$(8)="14 CAP. GAINS DI
ST."
116 LET M$(9)="16 TAXABLE PENSI
ONS"
118 LET M$(10)="18 RENTS,ROYALT
IES (E)"
120 LET M$(11)="19 FARM INCOME
(F)"
122 LET M$(12)="22 OTHER INCOME
"
124 LET M$(13)="25 EMP.BUS. EXP
.(2105)"
126 LET M$(14)="26 IRA DEDUCTIO
N"
128 LET M$(15)="30 MARRIED CPLE
DED.(U)"
130 LET M$(16)="A1 MEDICINES AN
D DRUGS"
132 LET M$(17)="A2a DOC. AND IN
S. BILLS"
134 LET M$(18)="A2b MED. TRANSP
ORTATION"
136 LET M$(19)="A2c OTHER MED.
EXP."
138 LET M$(20)="A6 STATE INCOME
TAXES"
140 LET M$(21)="A7 REAL ESTATE
TAXES"
142 LET M$(22)="A8 EXTRA SALES
TAX"
144 LET M$(23)="A11 MORTGAGE IN
TEREST"
146 LET M$(24)="A12 CREDIT CARD
INT."
148 LET M$(25)="A15 CASH CONTRI
BUTIONS"
150 LET M$(26)="A16 OTHER CONTR
IB."
152 LET M$(27)="A19 THEFT,CASUA
LTY LOSS"
154 LET M$(28)="A20 UNION,PROF.
DUES"
156 LET M$(29)="A22 OTHER MISC.
DED."
158 LET M$(30)="A25 DEDUCTIONS
OFFSET"
160 LET M$(31)="39 ADDITIONAL T
AXES"
162 LET M$(32)="45+49 TAX CREDI
TS"
164 LET M$(33)="56 OTHER TAXES"
166 LET M$(34)="57 TAXES WITHEL
D"
168 LET M$(35)="58 TAX PREPAYME
NTS"
170 LET M$(36)="63 OTHER PAYMEN
TS"

```



```

200 FOR I=1 TO 36
210 PRINT AT 9,1;"GIVE ";M$(I)
215 IF I=36 THEN GO SUB 38
220 INPUT U(I)
230 CLS
240 NEXT I
250 LET TI=0
260 FOR I=2 TO 12
270 LET TI=TI+U(I)
280 NEXT I
290 LET TA=U(13)+U(14)+U(15)
300 LET AGI=TI-TA
330 LET MY=U(16)+U(17)+U(18)+U(
19)
340 LET MD=MY-.05*AGI
350 IF MD<=0 THEN LET MD=0
360 IF AGI>=40000 THEN GO TO 40
0
370 PRINT " YOUR ADJUSTED GROSS
INCOME IS $";AGI;" FIND YOUR
SALES TAX FROM TABLE ON PAGE
36 AND ENTER IT. "
380 INPUT ST
390 GO TO 410
400 LET ST=(1+INT ((AGI-40000)/
5000))*R(U(1))+S(U(1))
410 LET TD=0
420 FOR I=20 TO 29
430 LET TD=TD+U(I)
440 NEXT I
450 LET TD=TD+ST+MD
470 LET SD=TD-U(30)
480 LET TAXI=AGI-SD-1040*U(1)
490 IF TAXI>50000 THEN GO TO 54
0
500 CLS
510 PRINT " YOUR TAXABLE INCOME
IS $";TAXI;" USE TAX TABLES
ON PAGES 28-33. ENTER TAX."
520 INPUT TAX
530 GO TO 590
540 REM CALC. FOR MARRIED FILIN
G JOINTLY
550 LET TAX=10171.6
552 LET MIN=47670
554 LET TAXR=.38
556 IF TAXI<62450 THEN GO TO 58
0
558 LET TAX=15768
560 LET MIN=62450
562 LET TAXR=.42
564 IF TAXI<89090 THEN GO TO 58
0
566 LET TAX=26976.8
568 LET MIN=89090
570 LET TAXR=.45
580 LET TAX=TAX+TAXR*(TAXI-MIN)
582 LET TAX=(INT (100*TAX))/100
590 LET TTAX=TAX+U(31)-U(32)+U(
33)
600 LET TAXDUE=TTAX-U(34)-U(35)
-U(36)
610 CLS
620 PRINT AT 9,1;" SUMMARY 1983
FED. INCOME TAX"
622 PRINT AT 11,6;"INPUT DATA"
625 PAUSE 200
630 FOR I=1 TO 36
640 PRINT M$(I);TAB 24;U(I)
650 NEXT I
660 PRINT
666 PRINT " END OF INPUT DA
TA , Wait 5 seconds."
670 PAUSE 600
680 CLS
682 PRINT "SUMMARY OF RESULTS"
684 PRINT "1985 FEDERAL INCOME
TAX"
686 PRINT
690 PRINT "23 TOTAL INCOME";TAB
24;TI
700 PRINT "31 TOTAL ADJUSTMENTS
";TAB 24;TA
710 PRINT "32 ADJ. GROSS INCOME
";TAB 24;AGI

```

```

720 PRINT "A5 MEDICAL DEDUCTION
";TAB 24;MD
730 PRINT "A8a SALES TAX";TAB 2
4;ST
740 PRINT "A24 TOTAL DEDUCTIONS
";TAB 24;TD
750 PRINT "A26 SUMMARY OF DEDUC
T.";TAB 24;SD
760 PRINT "37 TAXABLE INCOME";T
AB 24;TAXI
770 PRINT "38 TAX ON INCOME";TA
B 24;TAX
780 PRINT "56 TOTAL TAX";TAB 24
;TTAX
782 IF taxdue>0 THEN GO TO 790
784 LET op=-taxdue
786 PRINT "65 Overpaid!";TAB 24
;OP
788 GO TO 800
790 PRINT "68 TAX DUE";TAB 24;T
AXDUE
800 PRINT
810 PRINT "IF PRINTOUT OF OUTPUT
IS DESIRED PRESS P, OTHERWISE
PRESS M FOR MENU ."
820 PAUSE 0: IF INKEY$(">"P" THE
N GO TO 50
824 COPY
826 GO TO 50
850 LPRINT "INPUT FOR 1985 FED.
INCOME TAX"
860 LPRINT
870 FOR I=1 TO 36
880 LPRINT M$(I);TAB 25;U(I)
890 NEXT I
891 LPRINT
892 LPRINT
893 LPRINT
894 LPRINT
900 GO TO 50
1000 FOR I=1 TO 36
1002 LPRINT I;" ";M$(I)
1004 NEXT I
1006 GO TO 50
9000 SAVE "TAX85" LINE 9002
9002 BEEP 1,1: BEEP .5,0: BEEP .
5,2
9004 GO TO 50

```

### Variable List

1	6F	NUMBER OF EXEMPTIONS
2	7	SALARIES,WAGES,TIPS
3	8	INTEREST INCOME
4	9c	ADJUSTED DIVIDENDS
5	10	REFUND STATE INC.TAX
6	12	BUSINESS INCOME (C)
7	13	CAPITAL GAINS (D)
8	14	CAP. GAINS DIST.
9	16	TAXABLE PENSIONS
10	18	RENTS,ROYALTIES (E)
11	19	FARM INCOME (F)
12	22	OTHER INCOME
13	25	EMP.BUS. EXP.(2106)
14	26	IRA DEDUCTION
15	30	MARRIED CPLE DED.(U)
16	A1	MEDICINES AND DRUGS
17	A2a	DOC. AND INS. BILLS
18	A2b	MED. TRANSPORTATION
19	A2c	OTHER MED. EXP.
20	A6	STATE INCOME TAXES
21	A7	REAL ESTATE TAXES
22	A8	EXTRA SALES TAX
23	A11	MORTGAGE INTEREST
24	A12	CREDIT CARD INT.
25	A15	CASH CONTRIBUTIONS
26	A16	OTHER CONTRIB.
27	A19	THEFT,CASUALTY LOSS
28	A20	UNION,PROF. DUES
29	A22	OTHER MISC. DED.
30	A25	DEDUCTIONS OFFSET
31	39	ADDITIONAL TAXES
32	45+49	TAX CREDITS
33	56	OTHER TAXES
34	57	TAXES WITHHELD
35	58	TAX PREPAYMENTS
36	63	OTHER PAYMENTS

**TAX PREPARATION**

### INSTRUCTIONS

The MENU is the main driver of this program. In case of trouble enter GO TO MENU. Entering STOP in response to a MENU prompt will halt the program. Then enter GO TO RESTART.

The program contains formulas for the 1040 Tax Form and Form H, E, SE, and U. It also has 10 tax formulas. Change for MC shows the line numbers on the forms the data entries and calculations fit.

Only MENU operations 1, 5, or 7 may be chosen as initial responses. Operations 2, 3, 4, or 6 can follow the previous choice of 1. Operation 3 displays 13 on the screen or printer and shows the tax forms that have been set up with operation 2 must be used with care as the initial query asks a very crucial question: a yes answer clears all titles and should be so answered the first time through a new tax computation, and answered no at all following times. Operation 3 shows only the current Form as selected in the current title. Operation 4 is similar for printer output. Operation 7 saves both the tax data and operating program. Any changes to tax data in Forms A, E, 1040, Form T,

The tax tables contain three items for each tax bracket; the bracket income limit, the tax rate, and the tax accumulated from lower brackets.

The adjustments shown in Form U are setup to minimize the large income with credit for IRA and rollovers, and splitting of income between both income tax forms. Form A sets the large income. This can be changed in line A100.

Following are the changes

[illegible]

```

1 REM IQ51040 1985 R W Parker
2   IQ52 © 1984 M. Fisher
3   BASED ON J. R. Flannagan PROGRAM
4
5 REM
6 PRINT #1, AT 0,0; " HIT ANY
7 KEY TO CONTINUE

```

```

04      6 LET H=8: LET NEU=1: LET YOR
N=700: LET SETUP=200: LET MENU=1
0008  IN F(1:7) TO DIM N(6:4): DIM X
(15): DIM P(15): DIM I(15): DIM
(17): DIM D(7): DIM B(4): DIM H(
4): DIM U(4): DIM E(8): DIM F(6)
: POKE 23655,8
: RESTORE: GO SUB 9000: GO 5
UB 5000
10  GO TO MENU
20  REM *****READ SUB*****
30  FOR J=1 TO LEN A$
40  IF A$(J)="" THEN GO TO 50
45  IF A$(J)="" THEN GO TO 500
49  IF A$(J)="" THEN GO TO 500

```

```

50 NEXT J
50 LET P$=R$( TO J-1)
70 LET R$=R$(J+1 TO )
80 RETURN
90 REM *****PRINT SUB*****
100 LET P0$=PR-LEN STR$ INT TR
105 IF LPRINT P0$ THEN GO TO 117
110 PRINT TAB P0$;P$(LEN P$);TR
112 GO TO 120
117 LPRINT TAB P0$;P$(LEN P$);T
R
118 PRINT TAB P0$;P$(LEN P$);TR
120 POINT 20092,255
140 RETURN
150 REM *****INPUT*****
155 INPUT TR
170 GO SUB PRI
180 RETURN

```

```

0100 REM *****SETUP*****
0110 LET A=20: LET P03=0
0120 LET PR=99: LET PR2=
0130 DIM T(63): DIM A(7)
0135 LET IN=150: LET T(1)=1
0140 CLS : RESTORE
0145 REM *****MAIN LOOP*****
0150 FOR I=5 (F) TO D (F)
0160 GO SUB READ
0170 LPRINT: THEN GO TO 287
0180 GO TO 280: TO LEN P-1;
0185 GO TO 280
0190 LPRINT P$ ( TO LEN P-1);
0200 PRINT P$ ( TO LEN P-1);
0210 IF P$ (LEN P$) = "F" THEN GO T
0220 GO SUB IN
0230 LET T(I)=TR
0240 GO TO 50
0250 GO SUB READ
0260 LET T(I)=VAL P$
0270 LET TR=T(I)
0280 LET P$=""
0290 GO SUB PRI
0300 AT 0.8 "HIT ANY KEY TO CONTIN
0310 PAUSE 4E4: CLS : PRINT AT 2
0320 NEXT I
0330 RETURN

500 REM *** FORM SELECTION ***
510 IF R$(J-1)="A" THEN GO TO 5
520 IF R$(J-1)="E" THEN GO TO 5
530 IF R$(J-1)="S" THEN GO TO 5
540 IF R$(J-1)="U" THEN GO TO 5
550 IF R$(J-1)="U" THEN GO TO 5
560 GO TO 58
570 LET P$=R$( TO J-2): IF A(2)
580 THEN GO TO 580
590 LET T(58)=0: LET T(59)=0
600 GO TO 70
610 LET P$=R$( TO J-2): IF A(3)
620 THEN GO TO 610
630 LET T(59)=0
640 GO TO 70
650 LET P$=R$( TO J-2): IF A(4)
660 THEN GO TO 640
670 LET T(63)=0
680 GO TO 70
690 LET P$=R$( TO J-2): IF A(5)
700 THEN GO TO 670
710 LET T(63)=0: GO TO 70
720 LET P$=R$( TO J-2): IF A(6)
730 THEN GO TO 690
740 LET T(63)=0: LET T(64)=0
750 GO TO 70
760 REM *** GET Y OR N *****
770 PRINT AT 21.8
780 LET QS=""
790 POKE 25555.8: INPUT US
800 POKE 25555.8: INPUT US
810 IF US=INVEY THEN GO TO 750
820 LET QS=Q$+US
830 IF QS="Y" OR QS="N" THEN RE
TURN
840 PRINT #1; AT 0.8; "KEY ""Y""
OR ""N""
850 GO TO 720
860 REM ***** REST *****
870 PRINT AT 0.8; "HIT ANY KE
Y TO RETURN TO MENU": PAUSE 4E4:
CLS : GO TO MENU
1000 REM ***** MENU *****
1005 BEEP -5.10
1010 PRINT AT 0.8: 1955 1040 T
AX RETURN PROGRAM: TAB 14: "MENU
... FIRST SELECT OPERATION (1), T
HEN SELECT OPERATION (2-4 or 5)"
1020 PRINT "SELECT FORMS A,E,S,E,
T,U,V"
1030 PRINT "ENTER NEW DATA"; TAB
29: "2"
1040 PRINT "REVIEW OLD DATA"; TAB
29: "3"
1050 PRINT "CHANGE DATA"; TAB 29:
1060 PRINT "DISPLAY RESULTS"; TAB
29: "5"
1070 PRINT "PRINT RESULTS"; TAB 2
9: "6"
1080 PRINT "SAVE DATA"; TAB 29: "7"
1090 PRINT AT 20.8: TAB 5: "ENTER
MENU SELECTION": "U
INT AT 21.8: "YOU HAVE SELECTED F
ORM : FLASH 1 F$ (F): FLASH 8
1100 POKE 25592.255: INPUT M
1105 IF M<1 OR M>7 THEN GO TO 10
80
1110 GO TO (1200+208*(M-1))

1200 REM *** FORM SELECTION ***
1210 CLS : PRINT " DO YOU WANT T
O WORK ON FORMS A, E, S, U O
R V (Y OR N) : GO SUB YORN
1220 IF QS="Y" THEN GO TO 1250
1230 CLS : PRINT " DO YOU WANT T
O WORK ON MENU FORM 10407 (Y
OR N) : GO SUB YORN
1240 IF QS="N" THEN CLS : LET F=
7: GO TO MENU
1250 LET A(1)=1: LET R$=T$( TO L
EN T$): LET F=1: CLS : GO TO MEN
U
1260 CLS : INPUT "INPUT FORM DES
IGNATION: U OR V" I$
1270 FOR F=1 TO 6
1280 IF F$(F)=I$ THEN GO TO 1300
+10:F
1290 NEXT F
1300 PRINT AT 31.8; " SELECT FORM
FOR WORK INPUT A, E
U OR V": INPUT I$
1310 GO TO 1270
1320 LET R$=R$( TO LEN R$): LET
F$=I$: GO TO 1305

```

```

1330 LET R#:=S#( TO LEN S#): LET
1340 GO TO 1365
1350 LET R#:=S#( TO LEN S#): LET
1360 GO TO 1385
1380 LET R#:=U#( TO LEN U#): LET
1390 GO TO 1405
1400 LET R#:=U#( TO LEN U#): LET
1410 CL# : LET A(F)=F. PRINT AT
1420 " YOU HAVE SELECTED FORM #
1430 FLASH 1,F#(F). FLASH 2: PRINT AT
1440
1450 GO TO REST
1460 REM ***** NEW DATA *****
1470 LET NEU#:=1: LET IN:=100: LET
1480 LPRINT#0
1490 CL# : PRINT " THIS MENU OPT
1500 ON CAN TO GO TO? (Y OR N)"
1510 GO SUB YORN
1520 CL# : PRINT AT 0,0
1530 IF 9#="N" THEN GO SUB 240:
1540 GO TO REST
1550 LET NEU#:=0: GO SUB 190: GO T
1560
1570 REM ***** REVIEW *****
1580 LET LPRINT#0: LET NEU#0
1590 CL# : PRINT AT 0,0: LET R#-
1600 N#(F)+R#
1610 LET IN:=1700
1620 GO SUB 240: GO TO REST
1630 LET TR:=T(I)
1640 GO SUB YORN
1650 PRINT " OK? (Y OR N)"
1660 IF 1-3(F)=10 THEN PRINT AT
1670 1-5(F)+3,0
1680 IF 1-3(F)=10 THEN CL#
1690 IF 1-3(F)=10 THEN PRINT AT
1700 1-3(F)+10,0
1710 IF 1-3(F)=10 THEN RETURN
1720 IF 1-3(F)=10 THEN LET NEU VA
1730 L#:=1: IF 1-3(F)=10 THEN PRINT AT
1740 1-5(F)+2,4: GO SUB 190
1750 IF 1-3(F)=10 THEN PRINT AT
1760 1-5(F)+16,4: GO SUB 190
1770 IF 1-3(F)=10 THEN PRINT AT
1780 1-5(F)+3,0
1790 IF 1-3(F)=10 THEN PRINT AT
1800 1-5(F)+15,0
1810 RETURN
1820 REM ***** DISPLAY *****
1830 LET NEU#:=0: LET IN:=1700: LET
1840 REST:=2000: LET LPRINT#0
1850 CL# : PRINT " DO YOU WANT A
1860 PRINT COPY? (Y OR N)"
1870 GO SUB YORN
1880 IF 9#="Y" THEN LET LPRINT#1
1890 IF 9#="Y" THEN GO TO 2000
1900 IF A(F)=10 THEN GO TO 2000
1910 GO TO 2100+10*F
1920 PRINT #1: AT 0,0 " HIT ANY KE
1930 Y TO CONTINUE": PAUSE 424
1940 NEXT F
1950 LET REST:=000: GO TO REST
1960 LET R#:=T#( TO LEN T#): GO T
1970
1980 LET R#:=S#( TO LEN S#): GO T
1990
2000 LET R#:=U#( TO LEN U#): GO T
2010
2020 LET R#:=U#( TO LEN U#): GO T
2030
2040 REM ***** LPRINT *****
2050 LET LPRINT#1
2060 CL# R#:=N#(F)+R#
2070 GO TO 1030
2080 REM ***** SAVE *****
2090 SAVE "I52" LINE 1000
2100 CL# : GO TO MENU
2110 LET N#(1)=" 1040 TAX C
2120 LET N#(2)=" ITEMIZED D
2130 LET N#(3)=" RENT, ROYALT
2140 ETC INCOME
2150 LET N#(4)=" SELF EMPLO
2160 YED " SOCIAL SECURI
2170 TY TAX
2180 LET N#(5)=" INCOME SPLIT FOR
2190 WORK DEDUCTION " AND ST
2200 RATE TAX
2210 LET N#(6)=" VA STA
2220 TE TAX
2230 RETURN
2240 REM *** LOAD TABLES *****
2250 FOR K=1 TO 15
2260 READ X(K): READ P(K): READ
2270 K(K)
2280 FOR K=1 TO 7
2290 READ S(K): READ D(K): READ
2300 F#(K): NEXT K
2310 FOR K=1 TO 4
2320 READ B(K): READ H(K): READ
2330 U(K): NEXT K
2340 FOR K=1 TO 5
2350 READ E(K): READ F(K): NEXT
2360 K

```

Contd. on next pg.

```

5050 REM MARRIED TAXPAYERS JOINT
5060 RETURNS TAX TABLE
5070 DATA 0.0,0.3540,11.0,5720,
12,230.0
5080 DATA 7010,14,500.0,12300.0,
11,120.0,1650.0,14,500.0,12300.0,
5090 DATA 12020,22,2000.0,25000.0,
25,3500.0,31120.0,22,2000.0,25000.0,
5100 DATA 36630,33,6520.0,47870.0,
30,10171.0,62450.0,42,15700.0
5110 DATA 89000,45,26070.0,11350.0,
49,30120.0,109000.0,55,65700.0
5120 REM FORM DIMENSIONS
5130 IN T-ARRAY
5140 DATA 1,24,2,35,00,"A",25
5150 "E",01,04,05,00,00,"U",01,0
5160 "U",04,04,00,00,00,"U",01,0
5170 REM STATE TAX TABLES
5180 DATA 0,02,0,3000,03,00,00
00,00,120,12000,0070,470
5190 DATA 263,13,277,14,336,17,3
00,10,370,10,400,20
5200 RETURN
5210 REM *** TABLE SELECTION ***
5220 IF R$(J-1)="T" THEN GO TO 5
5230 IF R$(J-1)="U" THEN GO TO 5
5240 IF R$(J-1)="A" THEN GO TO 5
5250 IF R$(J-1)="G" THEN GO TO 5
5260 PRINT "ERROR IN TABLE SELEC
TION (6030)"
5270 GO TO 70
5280 REM FEDERAL TAX CALCULATION
5290 FOR K=10 TO 1 STEP -1
5300 IF T(K)=X(K) THEN GO TO 5
5310 NEXT K
5320 LET K=1
5330 LET T(10)=INT ((T(10)-X(K)
)+P(K)+1(K)*100)/100
5340 LET P=K: GO TO J-2: GO TO 7
5350 REM STATE TAX CALCULATION
5360 FOR K=4 TO 1 STEP -1
5370 IF T(57)-(T(1)-1)*000+T(3)
-T(7)-T(22))=0(K) THEN GO TO 53
5380 NEXT K
5390 LET K=1
5400 LET T(52)=INT ((T(57)-T(1)
-1)*000+T(3)-T(7)-T(22)-0(K))+0
(K)+0(K)*100/100
5410 LET P=K: GO TO J-2: GO TO 7
5420 REM UG5=INT ((INT ((T(10)-
40001)/0000)+1)*F(T(1))+E(T(1))+
001)+00100
5430 IF UG5=0 THEN GO TO 5440
5440 LET T(43)=UG5
5450 LET P=K: GO TO J-2: GO TO 7
5460 LET P=K: GO TO J-2: GO TO 5
5470 REM ***** TAX FORMS *****
5480 REM FEDERAL TAX FORM 1040
5490 LET T=NO OF EXEMPTIONS (L6)
5500 WAGES (L7): INTEREST INCOME (L
10): ST TX REFUND (L10): PENSION,
ROLLOVERS (L17):
5510 REM SUPPLEMENTAL INCOME
5520 LET E=RENTAL INCOME (L3), E
): RENT COMMISSION (L7), E): RENT I
NSURANCE (L9), E): RENT INTEREST (L
10), E): RENT REPAIRS (L12), E):
5530 REM LET E=E+RENT TAXES (L14, E
): RENTAL EXPENSE (L10, E): F(T(20)
+100)+T(20)+T(30): RENT DEP
RECIAT (L10, E): RENTAL COSTS (L20
): F(T(31)+T(32): RENT INCOME (L
21): F(T(20)-T(33))

```

```

5540 REM FORM 1040 CONT.
5550 LET T=T+T+TOTAL INCOME+C+E
(L23): F(T(2)+T(3)+T(4)+T(5)+T(34)
)+T(61): IRA DEDUCTION (L26): MARR
IAGE DED. (L30): FUNCT (L30): TOTAL ADJ
USTMENT (L31): F(T(7)+T(8)): ADJ GROS
S INC. (L32): F(T(6)+T(9)):
5560 REM ITEMIZED DEDUCTIONS
5570 LET A=DR DENT, INS (L2, A)
5580 MED, XPORTATION (L20, A): OTHER
MEDICAL (L20, A): TOTAL MEDICAL (L3
): F(T(36)+T(36)+T(37)):
5590 REM LET A=A+ST/LOC. INC. TAX
(L10, A): REAL ESTATE TAX (L7, A):
ENHANC. SALES (L10, A): F(T(41)): OTHER
TAXES (L9, A):
5600 REM LET A=A+TOTAL TAXES (L10
): F(T(39)+T(40)+T(41)+T(42)): MORT
GAGE INTEREST (L11, A): FINANCE CHARGE
(L12, A): TOTAL INTEREST (L14, A):
F(T(43)+T(43)):
5610 REM 1040 CONT.
5620 LET T=T+T+MEDICAL MIN. (L4
): F(T(100)+T(10)+0.05/100: MEDIC
AL DED. (L5, A): F(T(38)-T(11)):
F(T(38)-T(11)): TOTAL DEDUCT. (L
24, A): F(T(12)+T(15)):
5630 REM LET T=T+T+FINL. STAT. 2.5 (L
25, A): F(3540: NET DEDUCT. (L26, A)
L34): F(T(13)-T(14)): (T(13)-T(14)
): NET INCOME (L36): F(T(18)-T(1
5)): EXEMPTIONS (L36): F(T(1)+1040: TA
XABLE INCOME (L37): F(T(18)-T(17)):
5640 REM T=T+T+TAX (L38): F(T(19)
): TAX CREDITS (L49): TOTAL MADE+55
TAX (L50): F(T(19)-T(20)): 10
0/100+T(53)):
5650 REM LET T=T+T+SMALL INCOME VA
TAX DED. (L51): F(T(167)):
5660 REM "FUND" + "PAYF": INT (T(2
1)-T(23)): 100/100
5670 REM WORKING MARRIED COUPLE
5680 LET U= "LARGER INCOME (L14, U
): ADJUSTMENT (L5, U): F(T(150)
)+50 (T(34)+T(51)): 100/100: SMO
LLER INCOME (L14, U): F(T(150)+T
): ADJUSTMENT (L5, U): F(T(150)+T
(34)+T(51)): 100/100: DEDUCTI
ON (L5, U): F(T(150)+T(150)+100/
100):
5690 REM VA TAX FORM
5700 LET U="SMALL INCOME TAX (VA
): F(T(151)): LARGER INCOME TAX (VA
): F(T(152)): VA TAX (L16, U): F(T(1
52)): FED. VA PAYMENT (L16, U):
T(153): YOU PAY, - YOU GET: F(T(24
)+T(53)-T(54)):
5710 REM SELF EMPLOYED FORM
5720 LET S="SE INCOME (L32, S): L3
): SE TAX INCOME (L13, S): F(T(1
52000+T(21)): (S)+T(151)+100000
-T(21)): (S): (39000-T(21)): SE 55 TAX (L14, S
): F(T(152)-39000): (S): F(T(52)+11
.0+(39000-T(21)): (S): 39000+11.0/1
00:
5730 GO TO 4200

```

```

5740 REM 1040 TAX RETURN PROGRAM
5750 MENU
5760 FIRST SELECT OPERATION (1), THEN
SELECT OPERATION (2-4 of 5)
5770 SELECT FORMS A,E,SE,T,U,VA 1
5780 ENTER NEW DATA 2
5790 REVIEW OLD DATA 3
5800 CHANGE DATA 4
5810 DISPLAY RESULTS 5
5820 PRINT RESULTS 6
5830 SAVE DATA 7
5840 ENTER MENU SELECTION

```

```

5850 REM 1040 TAX CALCULATIONS
5860 NO OF EXEMPTIONS (L6): 3
5870 WAGES (L7): 55000
5880 INTEREST INCOME (L10): 2000
5890 ST TX REFUND (L10): 4000
5900 PENSION, ROLLOVERS (L17): 0
5910 TOTAL INCOME+C+E (L23): 55000
5920 IRA DEDUCTION (L26): 0
5930 MARRIAGE DED. (L30): 1772.15
5940 TOTAL ADJUSTMENT (L31): 1772.15
5950 GROSS INC. (L32): 52270.00
5960 MEDICAL MIN. (L4, A): 5113.54
5970 MEDICAL DED. (L5, A): 0
5980 TOTAL DEDUCT. (L24, A): 100071
5990 FINL. STAT. 2.5 (L25, A): 3540
6000 NET DEDUCT. (L26, A: L34): 35031
6010 NET INCOME (L36): 55739.00
6020 EXEMPTIONS (L36): 3120
6030 TAXABLE INCOME (L37): 52619.00
6040 TAX (L38): 12000.04
6050 TAX CREDITS (L49): 0
6060 TOTAL MADE+55 TAX (L50): 12000.04
6070 SMALL INCOME VA TAX DED. 0
6080 FED. VA PAYMENT (L16, U): 12000.00
6090 - YOU PAY, - YOU GET: 52.54

```

```

6100 ITEMIZED DEDUCTIONS
6110 DR DENT, INS (L2, A): 750
6120 MED, XPORTATION (L20, A): 25
6130 OTHER MEDICAL (L20, A): 150
6140 TOTAL MEDICAL (L3, A): 1000
6150 ST/LOC. INC. TAX (L7, A): 1000
6160 REAL ESTATE TAX (L10, A): 1700
6170 GENERAL SALES (L9, A): 421
6180 OTHER TAXES (L9, A): 421
6190 TOTAL TAXES (L10, A): 5321
6200 MORTGAGE INTEREST (L11, A): 4000
6210 FINANCE CHARGES (L12, A): 2000
6220 TOTAL INTEREST (L14, A): 2400
6230 CONTRIBUTIONS (L10, A): 1550
6240 CASUALTY, THEFT (L10, A): 0
6250 TOTAL MISCELLANEOUS (L20, A): 0
6260 ITEMIZED (U/O MED): 10071

```

```

6270 RENT, ROYALTY, ETC INCOME
6280 RENTAL INCOME (L3, E): 3120
6290 RENT COMMISSION (L7, E): 3120
6300 RENT INSURANCE (L9, E): 0
6310 RENT INTEREST (L10, E): 1500
6320 RENT REPAIRS (L12, E): 1500
6330 RENT TAXES (L14, E): 0
6340 RENTAL EXPENSE (L10, E): 3327
6350 RENT DEPRECIAT (L10, E): 3350
6360 RENTAL COSTS (L20, E): 3277
6370 NET RENT INCOME (L21): 8443

```

```

6380 SELF EMPLOYED
6390 SOCIAL SECURITY TAX
6400 SE INCOME (L32, C: L2, SE): 55000
6410 SE TAX INCOME (L13, SE): 0
6420 SE 55 TAX (L14, SE): 0
6430 INCOME SPLIT FOR WORK DEDUCTION
AND STATE TAX
6440 LARGER INCOME (L13, U): 45000
6450 ADJUSTMENT (L5, U): 4772.15
6460 SMALLER INCOME (L13, U): 15000
6470 ADJUSTMENT (L5, U): 1772.15
6480 DEDUCTION (L5, U): 1772.15
6490 VA STATE TAX
6500 SMALL INCOME TAX (VA, 13): 250.00
6510 LARGE INCOME TAX (VA, 13): 2347.00
6520 VA TAX (L16, U): 3217.00
6530 VA TAX WITHHELD (VA, 15): 3300
6540 FED. VA PAYMENT (L16, U)
+ YOU PAY, - YOU GET: 270.41

```

## More Machine Code Bits

SET CURSOR (7 bytes)  
This routine is identical to  
PRINT AT.  
cl=column rw=row  
01 rw cl LD BC, rw cl  
CD F5 08 CALL 08F5  
C9 RET  
  
PRINT CHARACTER (4 bytes)  
This routine prints a character  
on the screen.  
nn=hex code of character  
3E nn LD A,nn  
D7 RST 10  
C9 RET

PRINT STRING (10 bytes)  
This routine prints a string.  
dd=low byte ee=most  
addr=hex addr where string  
starts  
length=hex length of string  
11 dd ee LD DE,addr  
01 dd ee LD BC,length  
CD 6B 0B CALL 0B6B  
C9 RET

SLOW (4 bytes)  
Same as SLOW  
CD 2B 0F CALL 0F2B  
C9 RET



# 1040 on the 1000

## VU-CALC Edition

by Al Strauss

This VU-CALC program will accept your data and do the necessary computations to figure tax due line 68 or refund due line 65.

First, fill the VU-CALC spreadsheet with zeroes. When VU-CALC is loaded and you are faced with the menu, hit EDIT, STOP, then Enter. Now enter the following lines:

```
9500 FOR I=2 TO 8424 STEP 9
9510 LET B$(I)="0"
9520 NEXT I
9530 STOP
```

Enter FAST mode, and use GOTO 9500. Before you go back to the program, delete these lines. Restart VU-CALC by using GOTO 1, and select C-continue from the menu. [Ed. note - if you have more than 16K RAM you can leave the lines in, but you MUST use E-enter new template.]

If you are on social security you must complete the front of form 1040 to adjusted gross income (Column 05 in VU-CALC) to have the necessary data to enter amounts into column 07. After completing column 07 you enter the amount from line 11 SS into amount for line 21 B 1040. Line 11 amount SSA = Box L07. Line 21B amount 1040 = Box Q02. Then go back to col 03 and calculate formula in box C03. If social security is not needed, go straight to column 09, as SS figures will not affect computation.

## Layout of 1040 VU-CALC template

```
COL 01..LINE NOS. 6F AND 7 TO
          23, TOTAL INCOME.
COL 02..AMOUNTS FOR COL 01
COL 03..TOTALS COL 02
COL 04..LINE NOS. 24 TO 32
          ADJUSTMENTS TO INCOME
COL 05..AMOUNTS FOR COL 04
COL 06..LINES 1 TO 11 SSA 1099
COL 07..AMOUNTS COL 06
COL 08..LINE NOS 1 TO 19
          SCHEDULE A
COL 09..AMOUNTS COL 08
COL 10..LINES 20 TO 26
COL 11..AMOUNTS COL 10
COL 12..LINES NOS. 33 TO 50
          1040 TAX COMPUTATION
COL 13..AMOUNTS COL 12
COL 14..LINE NOS. 51 TO 68
          1040 TAX COMPUTATION
COL 15..AMOUNT COL 14
```

## CRYPTOGRAM Solution:

I'VE HEARD OF HALLEY'S COMET ALL MY LIFE  
IT DIDN'T OCCUR TO ME THAT I WOULD  
NOT WATCH IT ON TELEVISION

```
C03 B03+C02 REL TO ROW 5
I05 B05+C05+D05+E05+F05+G05+H05
REL EXIT GET SET BOX 015
J05 S03-I05
C07 B07/2
D07 S03-Q02
F07 C07+D07+E07
REL EXIT GET SET BOX E11
G07 I05-H05
H07 F07-G07
J07 (I07<H07)*(H07-I07)
K07 J07/2
L07 (K07<C07)*K07+(C07<K07)*C07
F09 B09+C09+D09+E09
REL EXIT GET SET BOX
S09,X09,R13
G09 J05+.05
H09 (F09>G09)*(F09-G09)
N09 I09+J09+K09+L09+M09
F11 H09+N09+S09+X09+Y09+E11
```

```
H11 (F11>G11)*(F11-G11)
B13 J05
C13 H11
F13 D13+E13
REL EXIT GET SET BOX
J13,H13,V13
G13 F13/2
H13 B13-C13
I13 B02+1040
S13 H13-R13
U13 (S13>V13)*(S13-V13)
G15 U13+B15+C15+D15+E15+F15
P15 (O15>G15)*(O15-G15)
R15 (G15>O15)*(G15-O15)
S15 (O15>G15)*(O15-G15)
```

## MINI XMOD REVIEW

by Mel Richardson

Toronto Timex-Sinclair Users Club

Sinc-Linc, Nov '85

I bought a new terminal program called "MINI XMOD". It promised to up/download Tinx programs for 16 or 64K machines, something that MTERM will not do for the TS1000 or ZX81. It is available for Westridge or Byte-Back MODEMs.

XMOD will do this and more. The user can toggle a SAVE function at will and store anything displayed on screen for later viewing or printout. Since the program resides either above rantom or in low memory with 64K, a Tinx/ZX81 program can be downloaded and run or saved to tape or printer. I found that I could download Apple routines and send them to the printer. With 64K, quite a long session can be saved and viewed at leisure offline. E-Mail can be composed and programs prepared for uploading before connecting.

XMOD will not auto-dial or answer as MTERM will but I find XMOD easier to operate in all functions. It is also easily converted to fast load formats. Thirteen 8.5 x 11 inch pages provide thorough documentation.

For those with T/5/ZX modems feeling shortchanged by the software, I highly recommend MINI XMOD.

MINI XMOD for Westridge or Byte-Back MODEMs: (specify make)  
\$20.00 (includes p&h) to Weymil Corporation, PO Box 5904,  
Bellingham WA 98227-5904

Ed Note: I understand that MINI XMOD is an adaption of XMOD, a public domain CPM modem driver program.



## Tales From the Chip..

(or, One Down, One to Go.)

by Mark Fisher

As you may have heard, I zapped my 2068 a month ago. I hope that some readers may find the story of its repair instructive, or at least entertaining.

John Conger was kind enough to loan his machine so that the Feb. newsletter could go out, and in the meantime, I bought a second 2068 to use. Normally, the next step would be sending the offending 2068 back to Timex. Unfortunately, the machine I have been using is a fully socketed prototype, and Timex Little Rock said that there was no way they could repair the same machine and return it. They are no longer repairing damaged 2068's, they said. They have a backlog of rebuilt 2068's which they send out in exchange when a damaged machine is returned for repair.

All right then, plan two: I decided to try fixing my 2068 myself. First, I substituted the easiest chips to find. I had one of Tom Bent's "fixed" exROMs installed in the machine; perhaps that blew. I replaced it with the original exROM; no change. I replaced the Z80; no change. I tried subbing a Spectrum ROM for the home ROM (being careful here; allowing for the fact that my Spectrum "ROM" is actually an EPROM with slightly different pinouts); still no go.

It looked like I was going to have to start buying chips. The LS245 buffer chips often absorb voltage spikes. I picked up two buffer chips (74LS245) from Mark Electronics, and replaced them; no change. The memory chips are a little hard to find (150 ns 4416's). Electronics Plus and Mark Electronics drew a blank. I tried swapping adjacent chips; no change.

In a fit of deduction, I decided that it must be the SCLD. They are unavailable, but there was a known good one in my replacement machine, and John hadn't picked his 2068 up yet. How to get it off? I was afraid of desoldering wick lifting the traces, but I heard of a chemical that would dissolve solder, leaving the circuit board intact. I got some from a friend's employer; it turned out to contain 40% hydrogen peroxide. I wasn't able to use it 'till two days later. When I reached for the vial, it had vanished, leaving only a white crystalline coating on the vial. Hrrumph!

Enough Mr. Nice Guy; I decided to use solder wick and peel the SCLD off. It actually wasn't very hard. I coated the wick with extra flux, and trimmed it as soon as it started to load up with solder. I then used an Exacto Knife to separate the leads from the board. The leads curl back under the chip, but the socket on my board makes contact with the sides of the leads, and the few ends I cut off didn't affect the chip. I put the new chip in the SCLD socket: no change. Oh, well. Did I damage the SCLD in removing it? Probably not; the screen pattern was the same with either chip.

In talking with Tom Bent, we realized that there are three other chips that control addressing: the LS244 that hides under the extra board on most machines, and two LS157's. I picked them up from Electronics Plus, and subbed them; no change.

We had also noticed that the memory chips were wired as pairs U6-7, U13-14, U17-18. Further, the pairs are not

side-by-side on the board; my chip swapping hadn't really moved anything important before. I tried moving the 17-18 pair to 6-7 and WOW!! I got the Timex logo! No response to the keyboard however. I looked around; my backup 2068 was going to have to wait 'till I could get a socket for the SCLD anyway...

Using a solder sucker, I lifted the excess solder from around the legs of the 4416 RAM chips. The suction doesn't leave the chip leads loose in the board, but it leaves the joints very weak - I then loosened them with the exacto, and levered them out of position on the board. A little careful prying under each chip got them out with only one loss. The "new" 4416's replaced U13-14, and I .T.W.O.R.K.E.D.!

Where am I now? My original machine is operating. My backup is down, until I find a supplier for '68 pin leadless chip carriers (surface mount). They are hard to find; the one I have is made by AMP, but has no part#. There is a manufacturer in Illinois; I'm not sure what their minimum order will be. Haven't found any local sources. I'll also need replacement 4416's, and sockets. If worst comes to worst, I'll return it to Timex to fix.

Moral? These things are fixable. Your machine may not be socketed, but chips can be removed without damage, and sockets are cheap when time comes to plug them back in. Lastly, if you're going to send a machine back to Timex, let me know first; with or without the chips, it'll just be scrapped anyway.

It sure feels good to have my good old sticky keyboard back!

MF

## A Mathematical Hint

by Murray & Caroline Barasch

When trying to sum an alternating series (terms successively positive and negative), it would seem natural to use the factor  $(-1)^n$ . However, your 2068 will squawk "INVALID ARGUMENT". Naturally, it evaluates  $B^A$  as  $EXP(B * LN(A))$ , and the logarithm of a negative number is complex, a no-no for any computer not alerted to handle complex numbers. The way out is to use, instead, a factor  $COS(N * PI)$ .

## CRYPTOGRAM

D'MP APRXY LT ARNPG'F OLUPZ

RNN UG NDTP. DZ YDYE'Z LOOKX

ZL UP ZARZ D SLKNY ARMP ZL

SRZOA DZ LE ZPNPMDFDLE.

## HELP!

How can I get my Memopack HRG to dump to my 2040 printer? If you have had experience with this combination, write Andre Laviolette, 1385 av. Bernard ouest, Suite 16, Montreal QC H2V 1W1 Canada.

I am interested in joining your users group [n/1 sent, ed.]. In addition, I am looking for the game program Deus Ex Machina. Suppliers are out of stock, and the publisher is out of business. Can you help me? John Riley, 1316 Farrara Dr., Odenton MD 21113 (301) 674-8560

I have been looking all over for the necessary software to support LPRINT, LLIST, and COPY for my Spectrum ROM and Tasman CPl (type B). I am particularly interested in getting printouts from ONICALC to my Panasonic 1091 printer. John L. Gordon, R.R. #4 Box 91, Chadds Ford, PA 19317.

## UNCLASSIFIED

FOR SALE: ZX81 system - 64K RAM, full size keyboard, etc. Write James Szymkowiatt, 1166 Cedar Ave., Shady Side, MD 20764 for details.

FOR SALE: 2068 system including: 2068; 2020 Recorder; 2040 Printer; 2050 Modem; Comrex CR-5300 amber monitor; many programs including Tasword, Multi-Draw, VU-3D, VUCALC, etc.; several books and the technical manual. \$500 for the package. Dennis Martinec, 508 Beechnut, Brandon, SD 57005 605-582-7189

## 32K BANKED MEMORY

Plugs into the TS2068 cartridge slot. This 32K ram is much more than just a memory. An on board battery keeps it alive even when you turn the computer off. Switch selectable for use in the DOCK or EXROM banks with NO mods to the computer. Write protect switch lets you use memory like an EPROM. Run your own plug-in BASIC programs! Extend capacity by 32K. Reduce or eliminate tape loading time. Detailed instructions include utilities for bank switching and data transfers. The perfect tool for extending your 2068's memory or for writing and debugging EPROM software. A beautiful board: solder masked, gold tipped, satellite grade anti-static coating. Very dependable and rugged. Battery included. Only \$109.95

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22 new commands for your TS1000! Advanced screen utilities make your ZX81 look more like a monochrome 2068. Includes READ, DATA, RESTORE, FILL MOVE, LEFTS, MIDS, RIGHTS. IN and OUT commands give you Basic control of I/O mapped peripherals which were previously accessed only in machine code. Extended Basic does not require the use of PEEK, POKE, or USR. Takes up just 3.5K of memory. 29 page manual, sample listings included. Unbelievable speed, excellent documentation. NO USR CALLS!! Only \$19.95

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Now the ZX81/TS1000/1500 has its very own (and very excellent) version of this popular ECOLOGY SIMULATION program; the idea of which first appeared in Oct. '84 Scientific American. WATOR recreates the ecology of 3 interdependent species. You can experiment by changing populations, feed cycles, reproduction, etc. Watch generations pass on the TV screen. Generate HI-RES population curves on the TS2040 printer. Very useful for studying predator/prey relationships. On cassette: Just \$16.95

## UNIVERSAL I/O PORT

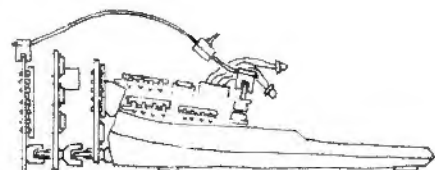
The ideal peripheral for experimenters. Learn to control and sense external devices using your computer. Works with ALL Sinclair/Timex machines. 8 bits parallel input. 8 bits latched output plus 2 handshake lines. Easy to set up or reconfigure many times. This board forms the foundation of a series of software applications which teach concepts of port programming. Choose one application listed below ABSOLUTELY FREE when you order a port board. Only \$69.95 each or 2 boards for \$109.95

### APPLICATIONS AVAILABLE NOW!!

\*Morse Code Translator for TS2068--Accepts tone decoder input, outputs ENGLISH on the TV screen or printer. Full screen display, auto scrolling. 5K buffer. Unique built-in signal reader aids in detecting/reducing noise from the system. This program is a great tool for learning morse code. Instructions cover set-up, tips for noise reduction, and a detailed tutorial on CW translation theory. Regularly: \$16.95

\*Pseudoscope for TS2068--A serial bit stream analyzer which mimics the action of an oscilloscope. Use to graphically portray low frequency digital signals in a horizontally scrolling graph. Program lets you store and compare samples. Print them out on a 2040 printer. Adjustable sample rate, 60hz timing dots are plotted with your input sample. Pseudoscope lets you SEE morse, rtty, serial keyboard signals, etc. as the computer sees them. Very useful in program development or in optimizing interface hardware. Tape/instruction book/full disassembly: \$16.95

\*Computer I/O Data Communications--Lets your 2068 speak to your ZX81! Use your TS1000 (must have 64K ram) to store data for your 2068. Send commands which transfer data back and forth, or cause the TS1000 to execute your own special Basic commands. Now 2068 owners can put their old 1000's back on line. Software includes operating systems for both computers. Requires 2 port boards (one for each computer). Tape/instructions: \$16.95.



Please add \$1.50 per order for postage. Phone orders are gratefully accepted. To order, send check, money order, or credit card information to:

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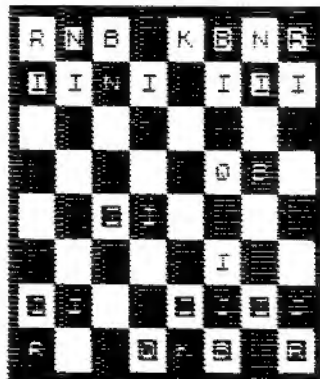
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YOU ZX-81

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03 B1-C3 H4-H7  
04 D8-C4 F4-F7  
05 C1-B5 B5-B4  
06 C3-B5 B4-F3  
07 B5-C7  
CHECKMATE  
YOU WIN



*Al Strauss*

## PRODUCT REVIEW

OK Industries Wire Nippers MS-01

Every electronics hobbyist needs nippers. I've seen some amazing things attempted to make do, including ground down fingernail clippers, but nothing works like the real thing. The most common type are not suitable for our use however; we require a fine tip, to reach in between chip leads.

VACO makes a beautiful pair, but they run around \$13.00. The cheapest ones run around \$4.50, but they are really cheap. OK industries, however, makes a nipper that fits the bill. It's \$5.50, roughly, has contoured handles, is spring loaded, and can nip the finest leads, in the tightest spaces.

There is a variant, for another dollar, that has an extra clip added to retain the nubbin of wire that always heads for your eye after its separation from the board. Either way, the little green nippers are a good value. Available from Electronics Plus.

Thanks for your PAID AD!

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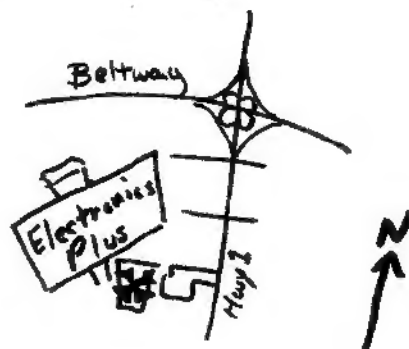
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C.A.T.S. 11 March

The mailing address of the Capitol Area Timex/Sinclair Users' Group is:  
 Capitol Area Timex/Sinclair Users' Group  
 P.O. Box 725  
 Bladensburg, MD 20710

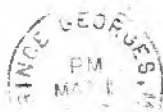
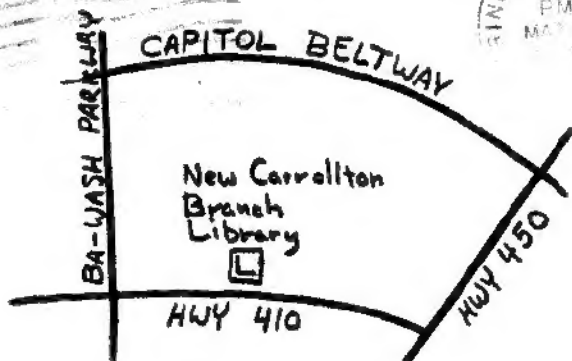
CATS is a non-profit special interest organization dedicated to serving the interests of those who own, use, or are interested in learning more about the Timex/Sinclair family of personal computers.

The official contact person for CATS is JULES GESANG!  
 301-922-0767

Meetings are held on the second Saturday of each month at 2 P.M. in the large meeting room of the New Carrollton Branch Public Library.

Ham Radio Network Information  
 OZX Net... Wednesdays, 9p.m. local time; 14.345 MHz NV4F NCS  
 Eastern Regional Sinclair Net... Sundays, 1600 Z; 7.245 MHz K0ZF NCS

CATS Newsletter  
 P.O. Box 725  
 Bladensburg MD 20710



# COME TO OUR MEETING!

The next meeting of C.A.T.S. will be held on:  
 Saturday, March 15, 1986  
 11:00 AM - Hardware meeting  
 2 - 5 PM - General meeting

At: New Carrollton Public Library  
 7414 Riverdale Road (Hwy 410), New Carrollton, MD

IF YOU ARE NOT A MEMBER OF CATS, THIS IS THE ONLY ISSUE YOU WILL RECIEVE  
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